is one not unlikely to produce the diamond form of carbon.

Some questions asked by Mr. De la Rue and by Dr. Debus regarding the principle of Mr. Hannay's process were responded to by Prof. Stokes, who pointed out the relation of the process sketched at present only in outline by Mr. Hannay, and the paper which had been communicated just previously to it by that gentleman.

A large tube some four inches in diameter, made of wrought iron, and bored with a small cylindrical hollow along its axis, was shown as one of the tubes in which Mr. Hannay's experiments were performed.

NOTES

The following grants have been made by the Council of the Chemical Society from their Research Fund :—100*l*. to Dr. C. R. A. Wright, for determinations of chemical affinities in terms of electrical magnitudes; 100*l*. to Mr. F. D. Brown, for experiments on vapour tensions.

Mr. J. R. Hind has been elected president of the Astronomical Society.

The French Government has appointed M. Hervé-Mangon, the new director of the Conservatoire des Arts et Métiers, as one of its representatives in the International Metric Commission. The death of General Morin has created a vacancy on the Committee of the Breteuil International Observatory. This observatory has been constructed in the Parc de Saint Cloud on the site of an old imperial mansion, at the expense of the associated nations. The contribution levied is in proportion to the population multiplied by one, if the nation does not make any use of the metric system, by two if the metric system is permissive as in the United States, and by three if it is the only legal measure as in Belgium, Italy, or France. The president of the Committee is General Ibanez (Spain), the secretary, Dr. Hirsch (Switzerland), and the director of the Breteuil Observatory Dr. Broch (Norway). England declined to join the Association. Bavaria, Saxony, and Würtemberg has each a vote and a representative, as well as Prussia.

The boring of the St. Gothard Tunnel was completed on Sunday morning at 9 o'clock. The length of the tunnel is 9¼ miles, and the boring was begun in 1872, with machinery worked by compressed air, devised by the engineer, Prof. Colladon, of Geneva; the piercing of the tunnel has taken seven years and five months. The tunnel is expected to be ready for traffic by the end of September, and the entire system of which it is the centre in the summer of 1882.

The savage process of producing fire by the friction of wood, so often described in books of travel, but seldom seen in this country, was performed by Farini's Zulus at the Westminster Aquarium on Monday, in the presence of Dr. Tylor, Gen. Lane Fox, Mr. Francis Galton, Col. Godwin-Austen, and other members of the Anthropological Institute. Some straw being laid on the ground as a bed, two sticks were placed on it a few inches apart to form a support for the third stick, which was laid across them, having a deep notch cut in it to receive the blunt point of the drilling-stick; this was twirled like a chocolate-muller between the palms of the hands, and when the twirler's hands reached the bottom they were either dexterously shifted to the top again, or another of the Africans squatting round took on and relieved the first. A spark was got in the charred dust in about five minutes, and was received with shouts and leaps of delight by the fire-makers, one of whom, carefully shielding it in a handful of the straw, soon fanned it into a flame. We understand that the operation will be made a regular part of the afternoon performance of these interesting barbarians. They are physically fine specimens of the Kafir type, varying in complexion from negroid blackness in some of the men to dark *café au lait* colour in the women. Their show-scenes, such as the marriage procession, war-dance, &c., are genuine exhibitions of native life. The Zulus are in exuberant health and spirits, and as yet but little spoilt by contact with civilisation.

There died at the Rectory, Newcastle Lyons, Hazlehatch, county of Dublin, on January 20, the Rev. Eugene O'Meara, M.A., for some nineteen years curate of Saint Mark's Parish, in the City of Dublin, and for nineteen other years Rector of Newcastle Lyons. Amidst the hard struggles of a laborious life Mr. O'Meara found time to do some scientific work, on account of which he deserves a brief notice in our columns. Born about the year 1815, he entered Trinity College, Dublin, in 1834, taking his B.A. degree in 1840, and that of M.A. in 1858. He soon obtained the post of Curate in St. Mark's, one of the poorest parishes in Dublin. Finding the necessity of having some definite object of research to serve him as a recreation after the toils of his daily labours, O'Meara began the study of the diatoms, attracted to them at first by the ease with which their siliceous frustules could be preserved and observed. He soon showed that he had a good eye for minute differences in outline and markings, and many a refreshing hour was spent by him in the investigation of the seemingly endless forms, for we will not call them species, of these interesting algæ. His first published communication was made to the British Association at its meeting in Dublin in August, 1857, on "Diatoms occurring in the Chalk of the County Antrim;" this was speedily followed by "Notes on Diatoms and Sponge Spicules in the Cambrian Rocks of Bray Head, near Dublin;" and a very long list might indeed be given of his numerous contributions to a catalogue of Irish diatoms, and of his descriptions of new forms. He was one of the original founders of the Dublin Microscopical Club, and continued to the very last one of its most diligent working members. It ought to be remembered that all this work was done at stray leisure moments snatched from more serious business; and however open to criticism his largest work, the "Report on Irish Diatomaceæ," is, none were more conscious of its defects than its author. Pleasant and cheerful in his manners, he was often a great source of encouragement to his many friends. The small circle in Dublin, bound together by many ties for these now more than twenty-five years, will very sadly feel his loss, and there are doubtless others, too, who, when they read this notice, will sympathise with them, and feel that they may add to the names of Harvey, Jones, Kinahan, and Moore, that of O'Meara.

The Municipal Council of Paris have decided with respect to the electric lighting of the Avenue de l'Opéra, to continue the agreement with the Jablockhoff Company up to May 1, 1881. We understand the gas experiments in the Rue de Quatre Septembre are not to be continued.

Through the Clarendon Press, Col. A. R. Clarke, C.B., is about to publish a treatise on Geodesy, in which the whole subject is treated in the light of the latest researches.

A telegram from Prof. Milne, of Japan, to Prof. John Perry, dated February 25, at 2 p.m., states that there had just occurred in Yedo a severe earthquake. Prof. Perry states that about two months ago occurred the most severe earthquake felt in Yedo for twenty years, so that we must regard the present as a period of great seismic activity. Mr. F. V. Dickins, writing to the *Times* in connection with this announcement, states that up to the end of 1878, when he left Japan, after some years residence in that country, the natives constantly predicted severe and destructive earthquakes in this present year 1880. "The Japanese are singularly accurate observers of natural phenomena and of their cyclical periods, and are also, according to the

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experience of residents among them, unrivalled weather prophets. Mr. Perry's news confirms in a remarkable manner the precision of their calculation, based no doubt upon a close observation of seismic periods."

THE last number of the *Transactions* of the Institution of Engineers and Shipbuilders in Scotland contains an elaborate paper, amply illustrated by plates, on the proposed Forth Bridge, with some remarks on the structure and cause of the fall of the Tay Bridge, by Mr. St. John V. Day, C.E.

AN unusually well organised and successful *conversazione* was held by the Birmingham Natural History Society on February 25.

THE Royal Order of the Crown has been bestowed upon Prof. Pettenkofer, of the University of Munich, so widely and deservedly known by his researches in chemical hygiene.

ON the completion of Prof. W. K. Parker's course of lectures at the Royal College of Surgeons, Prof. W. H. Flower's have commenced, in continuation of his previous series of lectures on the Comparative Anatomy of Man. We expect to give a full account of these lectures in future numbers of NATURE.

AT the end of a discussion in the last session of the Paris Academy of Sciences, with regard to the dissociation of chloral hydrate in the gaseous state, Prof. Sainte-Claire Deville gave utterance to the following frank expressions of belief in modern theories:—"I admit neither Avogadro's law, nor atoms, nor molecules, nor forces, nor particular states of matter, and I utterly refuse to believe in what I can neither see nor imagine. I confess that if complex combinations were invariably decomposed before undergoing volatilisation, my opinion would in no wise be changed. While waiting for absolute proofs I find that the chlorides of ammonium, and of the volatile organic bases, as well as a considerable number of bodies, occupy eight volumes in the gaseous state; and I admit that which I see, as long as I do not believe that my eyes are betraying me, or that I am labouring under a hallucination. It is this which remains to be shown."

AS the laws of the freezing of great surfaces of water have hitherto been but insufficiently known, the Municipality of Neuchatel has entrusted Professors Rougemont, Weber, and Raoul Pictet with the measurement during the thaw of the frozen lake, of the thickness of ice in its various parts. The ice, in opposition to what was observed on the lakes of Morat and Bienne, had a very varying thickness. Close to the shores its thickness was about 25 centimetres; at a distance of 100 metres from shore it was 14 centim., and further out the ice was so thin that it could not support the weight of a man; but some 15 metres further off the ice reached anew a thickness of 10 centimetres and more, and the greatest thickness was discovered in the middle of the lake, where it reached as much as 43 centimetres, being formed by the superposition of pieces of floating ice. It is worthy of notice that nearly throughout the surface of the lake, the ice was covered with a red powder, which sometimes coloured the ice and even the cracks in it with an intense red colour. The powder will be analysed to discover whether it is not due to diatomaceæ.

THE pilous system in man is just now attracting a special amount of attention from physiologists. Not only have Mad. Royer and Mr. Stainland Wake treated the subject from various points of view—the former considering it in reference to the question of atavism and its relation to certain changed conditions of the dental system—but Dr. Ecker also has contributed his part to the discussion by passing in review the anomalies of the hairy system in man. The instances of hypertrichosis in woman, collected by him, include cases from the time of Aristotle to our own day, Herr Ecker having himself assisted at the autopsy at Friburg of a woman, otherwise of normal development, with thick moustaches and a long flowing beard.

A PARIS engineer, M. de Combettes (we learn from *La Nature*), has contrived a curious toy, in which imitation fish are made to perform evolutions in a vessel of water. The fish are of tin similar to those sometimes drawn about with a magnet. But in the present case the mechanism is concealed, and at the operator's will the fish swim in circles, now in one direction, now in the opposite. In the wooden support of the vessel is concealed a small magneto-electric motor, which acts on a piece of soft iron in the fish, and by its motion carries them along with it. With the aid of a commutator the motion is reversed.

Ciel et Terre is the title of a new popular journal of Astronomy and Meteorology, to be published fortnightly at Brussels, edited by several astronomers and meteorologists of Brussels Observatory.

"A YEAR'S Work in Garden and Greenhouse," by Mr. George Glenny (Chatto and Windus) will, we have no doubt, be found serviceable to amateurs.

THE *Annual Reports* for 1878-9 of the Belfast Naturalists Field Club speak favourably of its progress and of increased work by the members. Several of the papers read are given in abstract; they are mostly geological.

THE *Natural History Journal* of the Societies of Friends' Schools for February is as good and varied as usual. There is an interesting paper on "Some freaks of Polypods and Heartstongue," by Mr. J. E. Clark, with a fine photograph from nature.

THE Second Annual Report of the Dulwich College Science Society, speaks favourably of its progress. Some good papers by members of the Society are given in the report, and others by outsiders, as Mr. W. L. Distant on Entomology, and Mr. Meldola on Spectrum Analysis.

FROM the Harvard Museum of Comparative Zoology we have received a useful "List of Dredging Stations occupied by the U.S. Coast Survey Steamers *Corwin*, *Bibb*, *Hassler*, and *Blake* from 1867 to 1879."

THE Algerian paper *Akhbar* announces the formation of an Algerian Company for cultivation of the Sahara. The means proposed are the systematic boring of artesian wells in carefully selected spots. The Company is to be connected somehow with the future Transalgerian Railway Company.

MR. F. WATTERS, one of H.M.'s Consuls in China, has lately published at Shanghai a work, entitled "A Guide to the Tablets in a Temple of Confucius," which forms a complete key to the official hagiology of China.

FROM Cooktown in Queensland it is announced that some Chinese have formed a company and taken land for growing sugar, rice, and coffee. They are thought to have a good chance of success, as the soil is very rich.

THE additions to the Zoological Society's Gardens during the past week include a Fallow Deer (*Cervus dama*), European, presented by Mr. Louis Hirsch; a Scops Eared Owl (*Scops giu*), European, two Rufous-necked Weaver Birds (*Hyphantornis textor*) from West Africa, presented by Mr. W. H. St. Quintin; an Allen's Galago (*Galago alleni*) from Fernando Po, a Serval (*Felis serval*), a Broad-fronted Crocodile (*Crocodilus frontatus*) from West Africa, eight Mandarin Ducks (*Aix galericulata*) from China, eight Summer Ducks (*Aix sponsa*), a Kittiwake Gull (*Rissa tridactyla*) from North America, two Grey-headed Love Birds (*Agapornis cana*) from Madagascar, five Common Lapwings (*Vanellus cristatus*), European, purchased.

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